

Attorney Docket No. 59489-8022.US02

IN THE CLAIMS:

1. (Presently Amended) A gas purification system providing hydrogen sorption and particle filtering, said gas purification system comprising:

a) a hydrogen sponge including hydrogen sorption material capable of removing hydrogen at less than 100 degrees centigrade;

b) a particle filtering device; and

c) an enclosure having an inlet and an outlet, said enclosure housing said hydrogen sponge and said particle filter device, said hydrogen sponge proximal to said inlet, said particle filter device being proximal to said outlet, said hydrogen sponge and said particle filter device arranged within said enclosure such that a gas flowing into said enclosure via inlet and out of said enclosure via said outlet, must follow a flow path first contacting said hydrogen sorption material and then flowing through the particle filtering device;

wherein said hydrogen sorption material can be thermally regenerated by heating said enclosure above 200 degrees.

2. (Original) A gas purification system as recited in claim 1, wherein the particle filtering device is manufactured from a sintered metal.

3. (Original) A gas purification system as recited in claim 1, wherein the particle filtering device is substantially capable of removing particles from said outlet gas flow as small as 0.003 micron.

4. (Amended) A gas purification system as recited in claim 2, wherein the particle filtering device is manufactured from at least one of: nickel, stainless steel.

5. (Original) A gas purification system as recited in claim 2, wherein the particle filtering device is comprised of a plurality of filtering elements.

Attorney Docket No. 59489-8022.US02

6. (Original) A gas purification system as recited in claim 5, wherein the filtering element has a conical shape.

7. (Original) A gas purification system as recited in claim 5, wherein the filtering element is a disk shape.

8. (Original) A gas purification system as recited in claim 1, wherein the hydrogen sorption material is selected from the group consisting of: zirconium, palladium, platinum, rhodium, ruthenium, nickel, titanium and alloys thereof.

9. (Original) A gas purification system as recited in claim 1, wherein the hydrogen sorption material comprises a non-evaporative getter alloy selected from the group consisting of: zirconium-vanadium-iron alloys and zirconium-iron alloys.

10. (Original) A gas purification system as recited in claim 1, further comprising a temperature measuring device.

Claims 11-38 (Cancelled).

39. (New) A gas purification system providing hydrogen sorption and particle filtering, said gas purification system comprising: a hydrogen sponge including hydrogen sorption material; a particle filtering device; and an enclosure having an inlet and an outlet, said enclosure housing said hydrogen sponge and said particle filter device, said hydrogen sponge proximal to said inlet, said particle filter device being proximal to said outlet, said hydrogen sponge and said particle filter device arranged within said enclosure such that a gas flowing into said enclosure via inlet and out of said enclosure via said outlet, must follow a flow path first contacting said hydrogen sorption material and then flowing through the particle filtering device, wherein said hydrogen sorption material can be thermally regenerated by heating said hydrogen sorption material to at least 200 degrees.